



PATENT  
Attorney Docket No. 05638.0018

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: )  
)  
Jörg BERNARD *et al.* ) Group Art Unit: 1761  
)  
Application No.: 10/088,602 ) Examiner: L. Wong  
)  
Filed: August 23, 2002 )  
)  
For: HARD CANDY WITH IMPROVED ) Confirmation No.: 6889  
STORAGE STABILITY )

**Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450**

Sir:

**APPEAL BRIEF UNDER BOARD RULE § 41.37**

In support of the Notice of Appeal filed December 4, 2006, and further to Board Rule 41.37, Appellants present this Appeal Brief and enclose a check for the fee of \$500.00 required under 37 C.F.R. § 1.17(c).

This Appeal Brief responds to the September 19, 2006, rejection of claims 1 to 12, and to the Notice of Panel Decision from Pre-Appeal Brief Review mailed February 6, 2007. In view of the petition for a one month extension of time that accompanies this Brief, it is due April 6, 2007, and is timely filed.

If any additional fees are required or if the enclosed payment is insufficient, Appellants request that the required fees be charged to Deposit Account No. 06-0916.

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**Real Party In Interest**

Sudzucker Aktiengesellschaft Mannheim/Ochsenfurt is the real party in interest as shown by the assignment recorded at Reel 013492, Frame 0797, on December 6, 2002.

**Related Appeals and Interferences**

There are currently no other appeals or interferences, of which Appellants, Appellants' legal representative, or Assignee are aware, that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**Status Of Claims**

This application, as originally filed on August 23, 2002, included claims 1-12.

The Office mailed a first Office Action on the merits on August 6, 2004. Claims 1-8 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,578,339 to Kunz et al. ("*Kunz*") and U.S. Patent No. 6,248,386 to Willibald-Ettle et al. ("*Willibald-Ettle*"). Claims 9-12 were objected to.

Appellants filed an Amendment and Request for Reconsideration on November 3, 2004, in which they amended the claims to remove multiple dependencies and to correct other informalities. Claims 1-12 remained pending and under consideration.

On January 24, 2005, the Office issued a final rejection in which it alleged that claims 1-12 were unpatentable under 35 U.S.C. § 103(a) in view of *Kunz* and *Willibald-Ettle*.

Appellants responded to the January 24, 2005, final Office Action with an Amendment and Request for Reconsideration on April 7, 2005. Appellants sought amendment of claims 1, 11, and 12 to clarify that the hard caramel had improved stability in storage. Claims 1-12 remained pending.

The Office issued an Advisory Action on April 26, 2005, indicating that entry of the Amendment was refused because it would require further search and because the Amendment was not deemed to place the application in better form for appeal.

On May 19, 2005, Appellants filed a Request for Continued Examination in which they requested entry of the previously unentered Amendment. Claims 1-12 remained pending.

The Office on May 31, 2005, issued a non-final Office Action in which it maintained the rejection of claims 1-12 under 35 U.S.C. § 103(a) and rejected claims 1-12 under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement.

On November 28, 2005, Appellants responded by providing a Request for Reconsideration accompanied by a Rule 1.132 Declaration of Dr. Kowalczyk. No claims were amended.

The Office issued another final rejection on February 21, 2006. In that Office Action, the Office maintained the rejections of claims 1-12 under 35 U.S.C. § 103(a) and § 112, first paragraph. The Office stated that it found the Rule 1.132 Declaration insufficient because, according to the Office, it was not commensurate in scope, there was no analysis of the data, and the results were no more than to be expected.

Appellants on August 16, 2006, filed yet another Request for Continued Examination, which was accompanied by a second Rule 1.132 Declaration of Dr. Kowalczyk. Claims 1, 11, and 12 were amended to recite that the hard caramels exhibit "reduced water uptake."

On September 19, 2006, the Office issued another non-final rejection in which it maintained the rejections of claims 1-12 under §§ 103(a) and 112, first paragraph. Once again the Office dismissed the Rule 1.132 Declaration as not commensurate in scope and for allegedly failing to analyze the data.

Appellants filed a Notice of Appeal and Pre-Appeal Brief Request for Review on December 4, 2006.

On February 6, 2007, the Office issued a Notice of Panel Decision indicating that the Appeal should proceed.

In summary, claims 1-12 stand rejected and are on appeal. A list of the claims on appeal appears in the Claim Appendix that begins on page i.

**Status Of Amendments**

All Amendments submitted during prosecution have been entered.



**Summary Of Claimed Subject Matter**

The claimed subject matter relates to hard caramels that have improved stability in storage. (Specification, page 2, lines 11-13.) Appellants have discovered that hard caramels containing certain limited concentrations of two ingredients, 1-O- $\alpha$ -D-glucopyranosyl-D-mannitol (1,1-GPM) and sorbitol, have unexpectedly superior properties. (*Id.*, page 3, lines 1-13.) Those properties, such as reduced water uptake, result in improved storage stability compared to hard caramels produced using concentrations of 1,1-GPM and sorbitol outside of the narrow ranges recited. (*Id.*)

In particular, the specification discloses a hard caramel with reduced water uptake containing 1,1-GPM (1-O- $\alpha$ -D-glucopyranosyl-D-mannitol) in an amount of 52 wt% to 60 wt% (based on the total dry solids of the hard caramel) and sorbitol in an amount of 0.5 wt% to 3.5 wt% (claim 1). (*Id.*, page 2, lines 15-18; page 3, lines 1-2.) Claims 2 to 8 recite embodiments having concentrations of 1,1-GPM and sorbitol falling within the narrow concentrations specified in claim 1. (*Id.*, page 2, lines 18-33.) Thus, in certain embodiments, the 1,1-GPM content is 54 wt% to 58 wt% (claim 2) or 55 wt% to 57 wt% (claim 3). (*Id.*, page 2, lines 18-20.) The sorbitol content in some embodiments is 1 wt% to 1.5 wt% (claim 4). (*Id.*, page 2, lines 21-22.) In other embodiments, the sorbitol content is 1.8 wt% to 3.5 wt% (claim 5). (*Id.*, page 2, lines 23-26.) In a one embodiment, the hard caramel has a 1,1-GPM content that is 54 wt% to 56 wt% and a sorbitol content that is 1.8 wt% to 3.5 wt% (claim 6). (*Id.*, page 2, lines 27-30.) In another specific embodiment, the hard caramel has a 1,1-GPM content of 55 wt% and a sorbitol content of 3 wt% (claim 7). (*Id.*, page 2, lines 27-30.) The hard

caramel of other embodiments has a 1,1-GPM content that is 56 wt% to 60 wt% and a sorbitol content that is 0.8 wt% to 1.8 wt% (claim 8). (*Id.*, page 2, lines 31-33.)

In addition to the 1,1-GPM and sorbitol, the hard caramels of the invention can also contain sweeteners, fillers, flavoring agents, coloring agents, flavor enhancers, medicinally active ingredients, food-compatible acids, fat substitutes, mineral salts and/or intense sweeteners (claim 9). (*Id.*, page 3, line 27 to page 5, line 11.) The hard caramels can also contain 36.5 wt% to 47.5 wt% of at least one additional sweetener selected from the group consisting of 1,6-GPS (6-O- $\alpha$ -D-glucopyranosyl-D-sorbitol), 1,1-GPS (1-O- $\alpha$ -D-glucopyranosyl-D-sorbitol), mannitol, and hydrogenated or non-hydrogenated oligosaccharides (claim 10). (*Id.*, page 5, lines 13-21; page 6, lines 19-23.)

The specification also discloses methods of producing a hard caramel with reduced water uptake. In one method, an aqueous solution or suspension of a mixture containing 1,1-GPM and sorbitol is evaporated under the influence of heat, then cooled and molded, yielding a hard caramel with reduced water uptake (claim 11). (*Id.*, page 5, lines 25-32.) In an alternate method, the hard caramel is produced using a mixture containing 1,1-GPM and sorbitol that is melt extruded, cooled and molded, yielding a hard caramel with reduced water uptake (claim 12). (*Id.*, page 5, line 25 to page 6, line 6.)

**Grounds of Rejection**

A. Claims 1-12 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly lacking enablement.

B. Claims 1-12 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 5,578,339 to Kunz et al. ("*Kunz*") and U.S. Patent No. 6,248,386 to Willibald-Ettle et al. ("*Willibald-Ettle*").

### **Argument**

Appellants have discovered that hard caramels containing certain limited concentrations of two ingredients, 1,1-GPM and sorbitol, have unexpectedly superior properties. Those properties, such as reduced water uptake, result in improved storage stability compared to hard caramels produced using concentrations of 1,1-GPM and sorbitol outside of the narrow concentration ranges recited. The Office has ignored this discovery, however, and Appellants respectfully traverse its rejection of the claims.

#### **I. The Specification Fully Enables Claims 1-12**

The Office rejects claims 1-12 under 35 U.S.C. § 112, first paragraph, as allegedly lacking enablement. (Office Action, page 2.) The entire substance of the Office's rejection is that "Applicant does not clearly teach what is encompassed by 'reduced water uptake.'" (*Id.*) Appellants respectfully traverse this rejection.

"The examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention." M.P.E.P. § 2164.04. Here, the Office fails to address any of the factors set forth in *In re Wands*, 858 F.2d 731, 737, 8 U.S.P.Q.2d 1400, 1404 (Fed. Cir. 1988) and discussed in M.P.E.P. § 2164.01(a). Accordingly, it has not met its initial burden. Appellants again point out that the specification discloses that reduced water uptake is an indicator of improved stability in storage. (See, e.g., Specification, page 3, lines 1-8.) Appellants respectfully submit that the term "reduced water uptake" is reasonably clear. Further, the working examples provide methods for assessing whether water uptake is reduced. (See, e.g., Specification, pages 9-13.) Thus, the specification provides sufficient guidance so that one skilled in the art could determine without undue experimentation whether a hard

caramel containing 1,1-GPM in an amount of 52 wt% to 60 wt% and sorbitol in an amount of 0.5 wt% to 3.5 wt% has reduced water uptake compared to a hard caramel with 1,1-GPM and sorbitol content outside of the scope of the claims. Consequently, the rejection should be withdrawn.

**II. Claims 1-12 Are Patentable Under 35 U.S.C. § 103(a)**

Claims 1-12 also stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,578,339 to Kunz et al. ("*Kunz*") and U.S. Patent No. 6,248,386 to Willibald-Ettle et al. ("*Willibald-Ettle*"). (Office Action, page 3.) The Office asserts that "the amount employed are no matter [sic] than a matter of choice and well-within the skill of the art and at most are deemed optimization." (*Id.*)

Appellants respectfully submit that the Office has failed to establish a *prima facie* case of obviousness based on the teachings of *Kunz* and *Willibald-Ettle*. Further, even had the Office established a *prima facie* case, the Specification and Rule 1.132 Declarations provide evidence of unexpected results that would be sufficient to rebut it.

**A. The Office Has Failed To Establish That The Claims Are *Prima Facie* Obvious Over The References' Teachings**

All pending claims depend from independent claim 1, which recites "[a] hard caramel with reduced water uptake containing 1,1-GPM (1-O- $\alpha$ -D-glucopyranosyl-D-mannitol) in an amount of 52 wt% to 60 wt% (based on the total dry solids of the hard caramel) and sorbitol in an amount of 0.5 wt% to 3.5 wt%." That claim requires specific amounts of not only 1,1-GPM (52 wt% to 60 wt%), but also sorbitol (0.5 wt% to 3.5 wt%). It also recites a particular type of candy—a hard caramel.

The claims of *Kunz* relied upon by the Office recite a sweetener (e.g., claim 5) comprising 45% to 60% by weight of 1,1-GPM, or a candy comprising that sweetener (e.g., claim 21). Claim 8 of *Kunz* permits the sweetener to include "small amounts" of sorbitol or other sweeteners. *Kunz* does not, however, require the presence of sorbitol in its sweetener and, as discussed below, it instead teaches that it is desirable to eliminate the sorbitol. *Kunz* does not teach using the sweetener in preparing a candy that is a hard caramel.

*Willibald-Ettle* teaches hard caramels comprising 1,1-GPM and sorbitol, but it does not specify their relative amounts. The Office acknowledges that "the claims differ as to the specific amounts employed," but finds that it would have been obvious "to use the claimed percentages in either *Kunz et al* or *Willibald-Ettle et al* because the use and manipulation of both 1,1-GPM and sorbitol are conventional in the production of hard candies such as caramels." (Office Action, page 3.)

Appellants respectfully traverse the Office's position. In order to properly reject a claim as obvious in view of a combination of prior art references, the Office has the burden of establishing a *prima facie* case that:

(1) . . . the prior art would have suggested to those of ordinary skill in the art that they should make the claimed composition or device, or carry out the claimed process; and (2) . . . the prior art would also have revealed that in so making or carrying out, those of ordinary skill would have a reasonable expectation of success. Both the suggestion and the reasonable expectation of success must be founded in the prior art, not in the applicant's disclosure.

*In re Vaeck*, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991) (citations omitted).

Here, the Office has failed to satisfy its burden of establishing that claims 1-12 are *prima facie* obvious over the combination of *Kunz* and *Willibald-Ettle* because it has not made a clear and particular showing that a teaching, suggestion, or motivation to combine the references existed in the prior art. *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1617, (Fed. Cir. 1999). In particular, the Office provides no findings as to the reason the ordinary artisan would have selected 1,1-GPM amounts from *Kunz* that are within the recited 1,1-GPM range, selected sorbitol amounts that are within the claimed range, and then combined the recited amounts of 1,1-GPM and sorbitol to produce a hard caramel. Instead, it is the Office's position that the selection of the amounts of 1,1-GPM and sorbitol is "a matter of choice and well-within the skill of the art and at most are deemed optimization." (Office Action, page 3.) But, as the court noted in *Dembiczak*, "[c]ombining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight." *Id.*

In this case, the Office sweeps aside its responsibility to establish a *prima facie* case of obviousness by alleging optimization without providing any clear and particular reasons that the ordinary artisan would arrive at the amounts of 1,1-GPM and sorbitol recited in the claims. Appellants again respectfully submit that the art relied upon by the Office would have motivated the ordinary artisan to remove as much sorbitol as possible from the hard caramel of *Willibald-Ettle*. Specifically, *Kunz* teaches that mixtures of 1,6-GPM or 1,6-GPM with other sugar alcohols or sugars in the presence of sorbitol yields unsatisfactory products that are sticky. (*Kunz* column 1, lines 49-52.) Further, *Kunz* not only teaches that it is desirable to remove the sorbitol, but the Examples of *Kunz* teach

the ordinary artisan how to accomplish removing the sorbitol from sweeteners by using chromatography. (*Kunz*, Example 3 at col. 6 to 7, and Example 7 at col. 8 to 9.) In addition, *Kunz* notes that the sweetener of Example 3, which lacks sorbitol, is an “excellent sweetener” (column 7 at lines 20-22), and it is this sweetener lacking sorbitol that is used in Examples 9 and 10 to sweeten food.

*Kunz*, therefore, when taken for all that it teaches, would not have motivated the ordinary artisan to include sorbitol, let alone sorbitol in the claimed amounts, in the method of making hard caramels taught by *Willibald-Ettle*. Neither does *Willibald-Ettle* provide any motivation to specifically select the recited ranges of 1,1-GPM and sorbitol based on its disclosure of a process for making hard caramels. Thus, there is no motivation for the ordinary artisan to make Appellants’ invention based upon the teachings of the references. Further, the Office does not provide any clear and particular reasons why the ordinary artisan would have been motivated to select the recited ranges for the production of a hard caramel. Therefore, the Office has failed to establish a *prima facie* case for rejecting the claims as unpatentable.

**B. Evidence Of Unexpected Results**

It is only after the Office has established a *prima facie* case that Appellants have any obligation to provide evidence of nonobviousness, such as unexpected results. M.P.E.P. § 2142. Nevertheless, Appellants can rebut any presumption of obviousness “by showing ‘(1) [t]hat the prior art taught away from the claimed invention . . . or (2) that there are new and unexpected results relative to the prior art.’” M.P.E.P. § 2144.05.III (citing *Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1322, 73 U.S.P.Q.2d 1225, 1228 (Fed. Cir. 2004)). In this case, the Specification and two Rule 1.132



Declarations of record establish unexpected results. Furthermore, the references relied upon by the Office teach away from their combination.

Data in the Specification and two Rule 1.132 Declarations show that hard caramels containing 1,1-GPM and sorbitol in the recited ranges have unexpectedly superior properties. In particular, hard caramels have a tendency to take up water during storage, which causes formation of an undesirable microcrystalline layer on the surface and cloudiness inside the hard caramel. (Specification, page 2, lines 2-10) Those properties reduce the marketability of the candy. (*Id.*, page 2, lines 8-10.) Appellants have found, however, that the unwanted water uptake depends upon the amount of 1,1-GPM and the amount of sorbitol present in the hard caramels. (*Id.*, page 3, lines 1-8.) As the Specification discloses, the unwanted water uptake is unexpectedly reduced when the 1,1-GPM and sorbitol are within the claimed ranges. That effect is not observed when the 1,1-GPM content is less than or greater than the limited range defined by the claims. For example, the Specification on page 11, third paragraph, notes that hard caramels containing only 50 to 51 wt% 1,1-GPM, a concentration below that recited in the claims, rapidly recrystallize, even though they contain 1.4 to 3.5 wt% sorbitol. Hard caramels containing a 1,1-GPM content of more than 60 wt%, the upper limit recited in the claims, have a tendency to crystallize on cooling. (*Id.*, sentence bridging pages 12-13.) Further, the Specification discloses that when the concentration of 1,1-GPM is controlled, hard caramels that include sorbitol have a lower tendency towards recrystallization. (*Id.*, page 12, last paragraph.) The Specification demonstrates, therefore, that concentrations of 1,1-GPM and sorbitol outside of the recited ranges do not result in properties that impart improved stability to the hard

caramel. It is only after Appellants' surprising finding that the ordinary artisan could then appreciate the importance and desirability of the recited concentration ranges.

Appellants have also supplemented the data in the Specification with two Rule 1.132 Declarations by Dr. Joerg Kowalczyk. The November 22, 2005, Kowalczyk Declaration ("First Kowalczyk Declaration") was filed in support of claims that recited "improved stability in storage." The August 10, 2006, Kowalczyk Declaration ("Second Kowalczyk Declaration") was filed in support of the current claims, which recite a particular feature of hard caramels that have improved stability in storage, i.e., "reduced water uptake." The Office dismissed both Rule 1.132 Declarations as allegedly not commensurate in scope and as failing to provide analysis of the data. (Feb. 21, 2006, Office Action, page 4; Sept. 19, 2006, Office Action, page 4.)

Both Rule 1.132 Declarations presented comparative data for multiple samples in which the 1,1-GPM and sorbitol amounts were both within and outside the claimed ranges. (First Kowalczyk Declaration, Exhibit 1; Second Kowalczyk Declaration, Exhibit 2). In the First Kowalczyk Declaration, Exhibit 1 presents data for a total of five samples having 1,1-GPM and sorbitol amounts within the recited ranges (samples A, F, H, L, and N) and 8 samples (B, C, D, E, G, I, and K) outside the recited range. In the Second Kowalczyk Declaration, four samples (P, Q, T, and U) have 1,1-GPM and sorbitol amounts within the recited range, while four samples (O, R, S, and V) are outside the recited ranges. In each case, the comparative samples involve 1,1-GPM and sorbitol amounts just outside the recited ranges. Taking the two Rule 1.132 Declarations together, the 1,1-GPM amounts for the inventive samples range from 52.8 to 59.9 wt%. The sorbitol amounts vary from 0.7 to 3.1 wt%. That data supplements data provided in

the Specification for hard caramels containing 54.6 or 55.1 wt% 1,1,-GPM and either 1.4 or 3.0 wt% sorbitol. (Specification, page 10, Table 2.) Given that Appellants have presented data that span the recited ranges, they respectfully submit that the data presented for the Office's consideration was commensurate in scope with the recitation that the hard caramels contain 1,1-GPM in an amount of 52 wt% to 60 wt% and sorbitol in an amount of 0.5 wt% to 3.5 wt %.

Appellants also respectfully submit that the Rule 1.132 Declarations provided sufficient analysis of the data. In each Declaration, Dr. Kowalczyk described the methods he used to prepare the samples. (First Kowalczyk Declaration, ¶ 9; Second Kowalczyk Declaration, ¶ 9). He also outlined the experimental conditions and parameters measured. (First Kowalczyk Declaration, ¶ 10; Second Kowalczyk Declaration, ¶ 10). The next paragraph of each Declaration explained the relationship of the microcrystalline layer (First Kowalczyk Declaration, ¶ 11) and the reduced water uptake (Second Kowalczyk Declaration, ¶ 11) to improved stability in storage. Dr. Kowalczyk referenced the results in Exhibit 1 and noted that "samples A, F, H, L, and N, which were prepared according to the invention, have noticeably thinner crystalline layers after storage than the sample prepared for the purpose of comparison have." (First Kowalczyk Declaration, ¶ 12.) He concluded that "the combination of specific concentrations of 1,1-GPM with specific concentrations of sorbitol results in hard caramels [that] have the unexpected advantageous property of thinner crystalline layers that in turn results in improved stability in storage." As noted *supra*, the crystalline layer develops due to water uptake by the hard caramel. In the Second Kowalczyk Declaration, Dr. Kowalczyk noted that the data presented in Exhibit 2 demonstrated that

the hard caramels have a lesser degree of water uptake. (Kowalczyk Declaration, ¶ 12.) He also observed that graphing the results, as shown in Figure 1 of Exhibit 2, makes clear that water uptake does not follow a predictable trend. (*Id.*, ¶ 13.)

Appellants respectfully submit that, contrary to the Office's allegation, each Rule 1.132 Declaration contained not only data commensurate in scope with the claims, but also an analysis of that data.

The data in the two Rule 1.132 Declarations, particularly when viewed in combination with the data in the Specification, establish that it is the combination of specific concentrations of 1,1-GPM with specific concentrations of sorbitol that results in hard caramels with the unexpected and advantageous property of reduced water uptake. The unforeseeability of the effect on water uptake of combining specific amounts of 1,1-GPM and sorbitol is perhaps easiest to appreciate when one notes that the graph of water uptake shown in Figure 1 of the Declaration is not linear. (Second Kowalczyk Declaration, Exhibit 2.) Instead, when either 0.7% or 2.0% sorbitol are combined with varying concentrations of 1,1-GPM, there is a minimum that appears at the recited range of 1,1-GPM. (*Id.*, Figure 1.) This reduced water uptake is entirely unforeseeable and unexpected. (First Kowalczyk Declaration, ¶¶ 7, 12, 13; Second Kowalczyk Declaration, ¶¶ 12-15.) As Dr. Kowalczyk noted, the unexpected minimum means that the observation is not mere optimization. (*Id.* at ¶14.) Reduced water uptake results in improved stability in storage, which has practical significance because it influences the marketability of the hard caramels. Thus, the Specification and the two Rule 1.132 Declarations provide ample evidence of unexpectedly advantageous properties of the claimed hard caramels that would rebut a *prima facie* case, had the

Office established one. *In re Woodruff*, 919 F.2d 1575, 1578, 16 U.S.P.Q.2d 1934, 1936-37 (Fed. Cir. 1990) (showing of unexpected results for a claimed range can establish nonobviousness).

Any presumption of obviousness is also rebutted in the instant case because *Kunz* teaches away from the claimed invention. As noted *supra* in II.A, *Kunz* teaches that sorbitol *should be removed*. In addition, that reference provides methods for effecting that removal. *Kunz*, therefore, provides the sort of teaching away that is sufficient to rebut any presumption of obviousness. M.P.E.P. § 2144.05.III (“A *prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention.”) (citing *In re Geisler*, 116 F.3d 1465, 1471, 43 U.S.P.Q.2d 1362, 1366 (Fed. Cir. 1997)).

**C. Dependent Claims 2-8 Are Independently Patentable**

For the reasons set forth above, the Office has not shown that the teaching of *Kunz* and *Willibald-Ettle* render obvious a hard caramel containing 1,1-GPM in an amount of 52 wt% to 60 wt% and sorbitol in an amount of 0.5% to 3.5%, as recited in claim 1. Dependent claims 2-8 recite even narrower ranges for the amount of 1,1-GPM and sorbitol present in the hard caramel. In claim 7, the 1,1-GPM content is set at 55 wt% and the sorbitol content is set at 3%.

Appellants respectfully submit for the reasons discussed *supra* that the Office's vague allegation of optimization fails to provide clear and particular reasons that the ordinary artisan would arrive at the amounts of 1,1-GPM and sorbitol recited in claim 1. The Office does not even make an attempt to specifically address the recited amounts of 1,1-GPM and sorbitol in dependent claims 2-8. Clearly, then, the vague allegation of

optimization is insufficient with respect to claims in which the amounts of 1,1-GPM and sorbitol are even more narrowly recited. Because claims 2-8 recite narrow or even, in the case of claim 7, explicitly defined amounts of 1,1-GPM and sorbitol, Appellants respectfully submit that those claims are independently patentable over claim 1.

In summary, Appellants respectfully maintain that the Office has failed to establish a *prima facie* case of obviousness at least because there is no motivation to combine the teachings of the references to produce a hard caramel having the amounts of 1,1-GPM and sorbitol recited in claim 1, or the narrower amounts recited in dependent claims 2-8. Further, even if the Office had established a *prima facie* case, the unexpected results shown in the Specification and Rule 1.132 Declaration and the teaching away from the inclusion of sorbitol by *Kunz* would be sufficient to rebut it. For these reasons, Appellants respectfully request reversal of this rejection and allowance of claims 1-12.

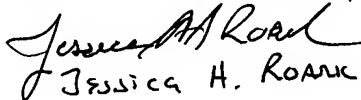
**Conclusion**

For the reasons given above, pending claims 1-12 are allowable and reversal of the Examiner's rejections is respectfully requested.

To the extent any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this Appeal Brief, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

  
JESSICA H. ROARK

Dated: April 3, 2007

By: Reg No. 54,869 For: David Forman  
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**Claims Appendix to Appeal Brief Under Rule 41.37(c)(1)(viii)**

1. A hard caramel with reduced water uptake containing 1,1-GPM (1-O- $\alpha$ -D-glucopyranosyl-D-mannitol) in an amount of 52 wt% to 60 wt% (based on the total dry solids of the hard caramel) and sorbitol in an amount of 0.5 wt% to 3.5 wt%.
2. The hard caramel according to Claim 1, wherein the 1,1-GPM content is 54 wt% to 58 wt%.
3. The hard caramel according to Claim 2, wherein the 1,1-GPM content is 55 wt% to 57 wt%.
4. The hard caramel according to one of the preceding Claims, wherein the sorbitol content is 1 wt% to 1.5 wt%.
5. The hard caramel according to one of Claims 1 through 3, wherein the sorbitol content is 1.8 wt% to 3.5 wt%.
6. The hard caramel according to one of Claims 1 and 2, wherein the 1,1-GPM content is 54 wt% to 56 wt% and the sorbitol content is 1.8 wt% to 3.5 wt%.
7. The hard caramel according to Claim 6, wherein the 1,1-GPM content is 55 wt% and the sorbitol content is 3 wt%.



8. The hard caramel according to Claim 1, wherein the 1,1-GPM content is 56 wt% to 60 wt% and the sorbitol content is 0.8 wt% to 1.8 wt%.
9. The hard caramel according to Claim 1, wherein the hard caramel contains sweeteners, fillers, flavoring agents, coloring agents, flavor enhancers, medicinally active ingredients, food-compatible acids, fat substitutes, mineral salts and/or intense sweeteners.
10. The hard caramel according to Claim 1, wherein the hard caramel contains 36.5 wt% to 47.5 wt% of at least one additional sweetener selected from the group consisting of 1,6-GPS (6-O- $\alpha$ -D-glucopyranosyl-D-sorbitol), 1,1-GPS (1-O- $\alpha$ -D-glucopyranosyl-D-sorbitol), mannitol, and hydrogenated or non-hydrogenated oligosaccharides.
11. A method of producing a hard caramel with reduced water uptake according to Claim 1, wherein an aqueous solution or suspension of a mixture containing 1,1-GPM and sorbitol is evaporated under the influence of heat, then cooled and molded, yielding a hard caramel with reduced water uptake.
12. A method of producing a hard caramel with reduced water uptake according to Claim 1, wherein a mixture containing 1,1-GPM and sorbitol is melt extruded, cooled and molded, yielding a hard caramel with reduced water uptake.

**Evidence Appendix to Appeal Brief Under Rule 41.37(c)(1)(ix)**

As part of the Responses filed November 28, 2005, and August 16, 2006,  
Appellants presented Rule 1.132 Declarations of Dr. Kowalczyk. Copies of those Rule  
1.132 Declarations are attached to this Appeal Brief.

**Related Proceedings Appendix to Appeal Brief Under Rule 41.37(c)(1)(x)**

There are no decisions in proceedings related to this appeal.



PATENT  
Customer No. 22,852  
Attorney Docket No. 5638.0018-00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )  
Jörg BERNARD *et al.* ) Group Art Unit: 1761  
Application No.: 10/088,602 ) Examiner: L. WONG  
Filed: August 23, 2002 )  
For: HARD CANDY WITH IMPROVED ) Confirmation No.: 6889  
STORAGE STABILITY )

MAIL STOP AMENDMENT  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

DECLARATION UNDER 37 C.F.R. § 1.132

1. I, Joerg Kowalczyk, am a German citizen, residing at Wormser Straße 11,  
67283 Obrigheim/Pfalz, Germany.

2. I graduated in chemistry and was awarded a Ph.D. in polymer chemistry  
from the Technical University of Braunschweig, Germany.

3. I hold the position of Head of Product Development in the Central  
Research & Development Department of Südzucker Aktiengesellschaft  
Mannheim/Ochsenfurt of Germany. During my employment there, I have been engaged  
in research and development regarding the manufacture and storage of hard candies.

4. I am a co-inventor of application no. 10/088,602, and I am familiar with that application.

5. I understand the rejections made in the Office Action of May 31, 2005, in Application No. 10/088,602, and the references referred to therein.

6. The claimed invention relates to a hard caramel with improved stability in storage and a method for producing the same.

7. I note that the Office Action of May 31, 2005, takes the position that the cited references teach the use of 1,1 GPM and sorbitol in hard caramels and that the different specific amounts employed were a matter of choice and at most mere optimization. I respectfully disagree. The Specification itself, particularly in the Examples, provides evidence that the improved stability of the hard caramels can be observed only if concentrations of 1,1-GPM and sorbitol are employed in the claimed ranges. This function was unexpected, and it has practical significance because the stability of hard caramels influences their marketability.

8. I have performed additional experiments beyond those described in the Specification to show that the claimed concentrations of 1,1-GPM and sorbitol result in hard caramels with improved stability in storage. The experimental data is summarized in Exhibit 1, which contains Examples A, B, and C.

9. In those Examples, I prepared several samples of hard caramels (samples A to N) according to Example 1 of the application under consideration. Samples A, F, H, L, and N (shown in bold in Exhibit 1) were prepared according to the invention.

Samples B, C, D, E, G, I, K, and M were prepared as comparative examples using concentrations of 1,1-GPM or sorbitol outside the claimed ranges.

10. Three experiments were then performed. In example A, samples A, B and C were stored under 70 % relative humidity at 30 °Celsius for 3 months. In example B, samples D to H were stored under 70 % relative humidity at 30 °Celsius for 6 months. In example C, samples I to N were stored under 75 % relative humidity at 30 °Celsius for 3 months. To measure thickness of the microcrystalline layer stored hard caramels were cut in slices of 20 µm thickness by means of a microtome in dry air. Slices were fixed on glass slides. Thickness was then determined by polarisation microscopy and a micrometer eyepiece. The results of those experiments are shown in the tables of Exhibit 1.

11. I note that the thickness of a microcrystalline layer on the surface of a hard caramel is a measure for storage stability. A crystalline layer builds up due to water uptake during storage. The building of crystalline layers or areas is an unwanted phenomenon impairing the quality of the product and its marketability. A hard caramel with a thin crystalline layer is preferable. Such a caramel has improved storage stability over a hard caramel with a thicker crystalline layer, both stored under the same conditions.

12. As shown in the attached Exhibit 1, samples A, F, H, L, and N, which were prepared according to the invention, have noticeably thinner crystalline layers after storage than the samples prepared for the purpose of comparison have. The results



show that the combination of specific concentrations of 1,1-GPM with specific concentrations of sorbitol results in hard caramels have the unexpected advantageous property of thinner crystalline layers that in turn results in improved storage stability. This finding was unexpected. Because these results were unexpected, it was not mere optimization to discover that the combination of specific concentrations of 1,1-GPM with specific concentrations of sorbitol would produce hard caramels with improved storage stability.

13. I further note that from the teaching of *Willibald-Ettle et al.* and *Kunz et al.* a skilled person could not foresee by any means that the selections of specific concentrations of 1,1-GPM and sorbitol in a hard caramel would decrease the tendency of building crystalline layers, thus improving storage stability. The unexpected finding above would not have been obvious from the prior art.

14. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated: November 22nd, 2005

By:

  
Dr. Joerg Kowalczyk

## Exhibit 1



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### Example A

storage conditions: 70% rel. hum. / 30°C; storage time: 3 months

	GPM [% d.m.]	Sorbitol [% d.m.]	GPS [% d.m.]	Thickness of microcrystalline boundary layer [ $\mu\text{m}$ ]
Sample A	53.3	1.5	40.1	273
Sample B	45.4	1.4	64.1	416
Sample C	49.0	3.6	40.5	419

### Example B:

storage conditions: 70% rel. hum. / 30°C; storage time: 6 months

	GPM [% d.m.]	Sorbitol [% d.m.]	GPS [% d.m.]	Thickness of microcrystalline boundary layer [ $\mu\text{m}$ ]
Sample D	44.7	3.3	44.4	998
Sample E	49.0	3.6	40.5	727
Sample F	52.8	3.1	37.6	628
Sample G	45.4	1.4	48.2	703
Sample H	53.3	1.5	40.1	437

### Example C:

storage conditions: 75% rel. hum. / 30°C; storage time: 3 months

	GPM [% d.m.]	Sorbitol [% d.m.]	GPS [% d.m.]	Thickness of microcrystalline boundary layer [ $\mu\text{m}$ ]
Sample I	44.7	3.3	44.4	817
Sample K	49.0	3.6	40.5	746
Sample L	52.8	3.1	37.6	644
Sample M	45.4	1.4	48.2	728
Sample N	53.3	1.5	40.1	495





PATENT  
Customer No. 22,852  
Attorney Docket No. 5638.0018-00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Jörg BERNARD *et al.*

Application No.: 10/088,602

Filed: August 23, 2002

For: HARD CANDY WITH IMPROVED  
STORAGE STABILITY

} Group Art Unit: 1781

} Examiner: L. WONG

} Confirmation No.: 6889

MAIL STOP AMENDMENT  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

DECLARATION UNDER 37 C.F.R. § 1.132

1. I, Joerg Kowalczyk, am a German citizen, residing at Wormser Straße 11, 67283 Obrigheim/Pfalz, Germany.
2. I graduated in chemistry and was awarded a Ph.D. in polymer chemistry from the Technical University of Braunschweig, Germany.
3. I hold the position of Head of Product Development in the Central Research & Development Department of Südzucker Aktiengesellschaft Mannheim/Ochsenfurt of Germany. During my employment there, I have been engaged in research and development regarding the manufacture and storage of hard candies.

4. I am a co-inventor of application no. 10/088,602, and I am familiar with that application.
5. I understand the rejections made in the Office Action of February 21, 2006, in Application No. 10/088,602, and the references referred to therein.
6. The claimed invention relates to a hard caramel with improved stability in storage and a method for producing the same.
7. I note that the Office Action of February 21, 2006, takes the position that the cited references teach the use of 1,1 GPM and sorbitol in hard caramels and that the different specific amounts employed were a matter of choice and at most mere optimization. I respectfully disagree. The Specification itself, particularly in the Examples, provides evidence that the improved stability of the hard caramels can be observed only if concentrations of 1,1-GPM and sorbitol are employed in the claimed ranges. This function was unexpected, and it has practical significance because the stability of hard caramels influences their marketability.
8. Further to my declaration of November 22, 2005, filed November 28, 2006, I have performed additional experiments to show that the claimed concentrations of 1,1-GPM and sorbitol result in hard caramels with improved stability in storage. The experimental data is summarized in Exhibit 2, annexed to this declaration, which contains Example D.

9. In this Example, I prepared several samples of hard caramels (samples O to V) according to Example 1 of the application under consideration. Samples P, Q, T and U (shown in bold in Exhibit 2) were prepared according to the invention. Samples O, R, S, and V were prepared as comparative examples using concentrations of 1,1-GPM or sorbitol outside the claimed ranges.

10. In the experiment performed all samples were stored under 70 % relative humidity at 30 Celsius for 3 days. For each sample the water content before storage was measured. After 3 days the individual degrees of water uptake into the caramels were calculated based on the weight gained during storage. The results of the experiment are shown in the table and Figure 1 of Exhibit 2.

11. I note that the degree of water uptake of a hard caramel is a measure for storage stability. Due to water uptake during storage a crystalline layer builds up. The formation of crystalline layers or areas is an unwanted phenomenon impairing the quality of the product and its marketability. A hard caramel with a low water uptake resulting in only a thin crystalline layer, if any, is preferable. Such a caramel has improved storage stability over a hard caramel with a higher degree of water uptake during storage, provided that both are stored under the same conditions.

12. As shown in Exhibit 2, samples P, Q, T and U, which were prepared according to the invention, have noticeably lesser water uptake during storage than the samples prepared for the purpose of comparison have. The results show that the combination of specific concentrations of 1,1-GPM with specific concentrations of

sorbitol results in hard caramels have the unexpected advantageous property of a lesser degree of water uptake.

13. This finding was unexpected. Before I made the present invention, I would have never expected that certain concentrations of 1,1-GPM and sorbitol will have that beneficial effect to a hard caramel. As depicted in Figure 1 of Exhibit 2, the improved storage stability of a hard caramel as estimated by way of measuring its water uptake during storage, does not at all follow a mere predictable trend. This is in contrast to what the Office Action is assuming. That is, decreasing the concentration of 1,1-GPM and/or increase the concentration of sorbitol in a known hard caramel does not necessarily result in a caramel with lesser water uptake, i.e. improved storage stability.

14. Because these results were unexpected, it was not mere optimization to discover that the combination of specific concentrations of 1,1-GPM with specific concentrations of sorbitol would produce hard caramels with improved storage stability.

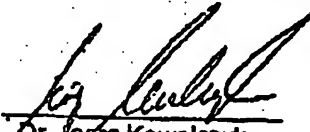
15. I further note that from the teaching of *Willibald-Ettle et al.* and *Kunz et al.* a skilled person could not foresee by any means that the selections of specific concentrations of 1,1-GPM and sorbitol in a hard caramel would decrease the tendency of building crystalline layers, thus improving storage stability. The unexpected finding above would not have been obvious from the prior art.

16. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and

further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated: August 10<sup>th</sup>, 2006

By:

  
Dr. Jozef Kowalczyk

end: Exhibit 2



SÜDZUCKER 

## Exhibit 2

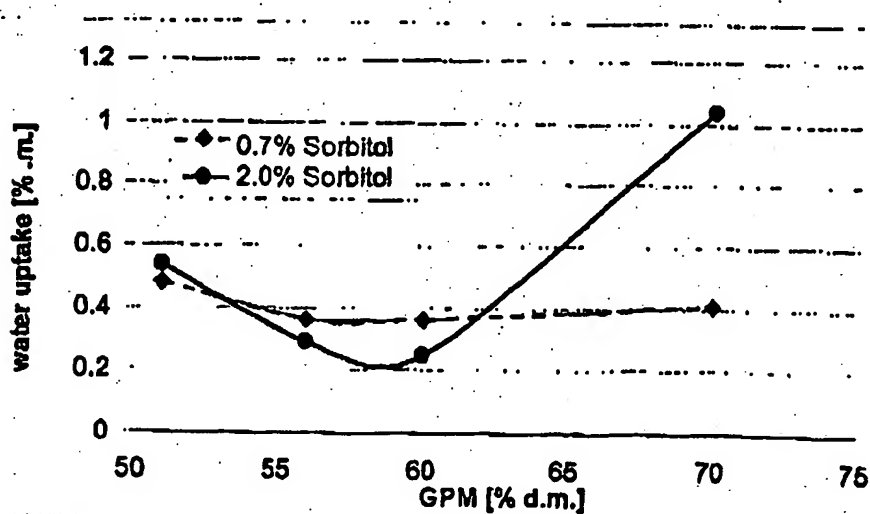
### Example D

storage conditions: 70% rel. hum. / 30°C; storage time: 3 days

**Table:**

	GPM [% d.m.]	Sorbitol [% d.m.]	GPS [% d.m.]	Water content before storage [g/100g]	Water uptake [% d.m.]
Sample O	50.2	0.7	46.9	2.1	0.47
Sample P	55.5	0.7	42.1	1.9	0.36
Sample Q	59.9	0.7	38.3	2.5	0.37
Sample R	69.6	0.7	28.5	2.5	0.41
Sample S	50.0	2.0	46.6	2.5	0.53
Sample T	54.9	2.0	41.6	2.0	0.30
Sample U	59.0	2.0	37.8	2.4	0.25
Sample V	69.2	2.0	28.1	2.5	1.05

**Figure 1**



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